## REMARKS

The Official Action mailed May 15, 2002 has been received and its contents carefully noted. Filed concurrently herewith is a *Request for One Month Extension of Time*, which extends the shortened statutory period for response to September 15, 2002. Accordingly, Applicant respectfully submits that this response is being timely filed.

Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on September 15, 1999, December 16, 1999, April 17, 2000, December 11, 2001 and March 11, 2002. However, Applicants have not received acknowledgment of the Information Disclosure Statement filed on December 21, 2001. Applicant respectfully request the Examiner to provide an initialed copy of the Form PTO-1449 evidencing consideration of this Information Disclosure Statement.

Claims 1-6, 8-20, 22-34, 36-48, and 50-167 are pending in the present application and claims 1, 8, 15, 22, 29, 36, 43, 50, 57-60, 68-71, 79-82, 90-93, 101-104, 112-115, 123-126, 134-137, 145-148, and 156-159 are independent. Independent claims 1, 15, 29, 43, 57, 59, 68, 70, 79, 81, 90, 92, 101, 103, 112, 114, 123, 125, 134, 136, 145, 147, 156 and 158 have been amended herewith to further recite that the hard-carbon coating contains hydrogen. Independent claims 8, 22, 36, 50, 58, 60, 69, 71, 80, 82, 91, 93, 102, 104, 113, 115, 124,126, 135, 137, 146, 148, 157 and 159 have been further amended to recite that the element contained in the hard-carbon coating has a concentration at 20 atomic% or less. As explained in more detailed below, these amendments are believed to patentably distinguish the present application from the prior art and favorable reconsideration is requested.

Paragraph 3 of the Official Action rejects claims 1-6, 15-20, 29-34, 43-49, 57, 59, 61-66, 68, 70, 72-77, 79, 81, 83-88, 90, 92, 94-99, 134, 136, 138-143, 145, 147, 149-154, 156, 158, and 160-165 as obvious based on the combination of JP 04-219647 to Miyamoto or JP 04-355228 to Hirayama and U.S. Patent 4,897,829 to Ikoma and either JP 63-275037 to Shinohara or U.S. Patent 5,182,132 to Murai. As noted above, independent claims 1, 15, 29, 43, 57, 59, 68, 70, 79, 81, 90, 92, 101, 103, 112, 114, 123, 125, 134, 136, 145, 147, 156 and 158 have been amended herewith to further recite that the hard-carbon coating contains hydrogen. It is respectfully submitted that

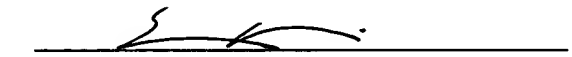
the prior art of record, whether taken alone or in combination, fails to disclose or suggest this limitation. Specifically, Miyamoto and Hirayama form the hard-carbon coating by a sputtering method that does not use hydrogen gas and thus it is respectfully submitted that these references fail to disclose or suggest that the hard-carbon coating contains hydrogen. Favorable reconsideration is requested in view of the above.

With respect to the remaining rejections set forth in Paragraphs 4-10 of the Official Action, in addition to the amendments discussed above, it is further noted that independent claims 8, 22, 36, 50, 58, 60, 69, 71, 80, 82, 91, 93, 102, 104, 113, 115, 124,126, 135, 137, 146, 148, 157 and 159 have been further amended to recite that the element contained in the hard-carbon coating has a concentration at 20 atomic% or less. It is respectfully submitted that the prior art of record, whether taken alone or in combination, fails to disclose or suggest this feature of the present invention and favorable reconsideration is requested in view thereof.

Paragraph 12 of the Official Action rejects claims 1-6, 8-20, 22-34, 36-48 and 50-167 under the doctrine of obviousness-type double patenting based on the claims of U.S. Patent 6,171,674. Paragraph 13 of the Official Action further provisionally rejects claims 1-6, 8-20, 22-34, 36-48, and 50-167 under the doctrine of double patenting based on U.S. Application Serial Number 09/396,382. In response, it is respectfully submitted that the claims of both the '674 patent and the '382 application fail to disclose or suggest the features discussed above, namely that the hard-carbon coating contains hydrogen or that the element contained in the hard-carbon coating has a concentration at 20 atomic% or less. Therefore, it is respectfully submitted that the rejection of these claims under the doctrine of double patenting should be reconsidered and withdrawn.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



Eric J. Robinson
Reg. No. 38,285

Robinson Intellectual Property Law Office, P.C.
PMB 955
21010 Southbank Street
Potomac Falls, Virginia 20165
(571) 434-6789

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

IN THE CLAIMS:

Please amend claims 1, 8, 15, 22, 29, 36, 43, 50, 57-60, 68-69, 70-71, 79-82, 90-93, 101-104, 112-115, 123-126,134-137, 145-148 and 156-159 as follows:

1. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

8. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

15. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic

material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

22. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less;

wherein said [contains at least one of element] hard-carbon coating selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

29. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wavelength of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

36. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

43. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

50. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said

substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

57. (Thrice Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

58. (Thrice Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

59. (Thrice Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

60. (Thrice Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

68. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

69. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

70. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

71. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic

material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

79. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less and wherein said hard-carbon coating contains hydrogen.

80. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration

at 20 atomic% or less.

81. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

82. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

90. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

91. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

92. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

93. (Twice Amended) A method of operating an optical magnetic disk

comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

101. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

102. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

103. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

104. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

112. (Twice Amended) A method of operating a compact disk comprising the

steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

113. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

114. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and

wherein said hard-carbon coating contains hydrogen.

115. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

123. (Thrice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

124. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon

coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

125. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

126. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration

at 20 atomic% or less.

134. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, and wherein said hard-carbon coating contains hydrogen.

135. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

136. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

137. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

145. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

146. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film

comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

147. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

148. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm into said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less;

wherein said hard-carbon coating contains at least one of element

selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

156. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

157. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/mm^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

158. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic

material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

159. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm$^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, [and] wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.